



JEFFERSON LAB EH&S COMMITTEE MEETING

August 6, 2005

9:00 AM - 10:00 AM, CEBAF Center A110

JEFFERSON LAB EH&S Committee Members:

James Murphy (Chairman)
Carter Ficklen
John Kelly

Robert May
Dennis Skopik

JEFFERSON LAB EH&S Committee Advisors:

Bruce Ullman

Other Attendees:

Linda Even
Christina Krasche
John Musson

John Hogan
Craig Ferguson

1. Agenda was accepted as written.
2. Safety Topic – John Kelly reported that the security guards frequently find coffee makers that have been left “on” over night. John provided the attached slides of the security logs. These appliances can over heat and cause a fire. Please remind your staff of this safety concern. It is recommended that they either switch older coffee makers for ones with an auto-shut-off feature, or use a heavy-duty timer with the coffee maker.
3. Performance Evaluation and Measurement Plan (PEMP) – Craig Ferguson provided an overview of the draft FY06 EH&S performance evaluation measures and targets. These are changing from past years to reflect DOE Office of Science wish to deflate what have been seen as "inflated grades" and also to allow comparison of performance among SC labs.
4. Director's Safety Council (DSC) – Craig Ferguson briefed the JEHSC regarding the activities of the DSC. The newly formed Worker's Safety Committee has provided the DSC a list of concerns (See Attached). The DSC has assigned the tasks and is monitoring progress. The WSC and the DSC will be utilizing the CATS system for updates and tracking these items.
5. Progress Reports from:
 - a. Electrical Safety Subcommittee (ESS) – John Musson provided the JEHSC with a progress report on EH&S Manual Electrical Chapters. Butch Meier has been reviewing these chapters and will submit them for final review. Chapter 6210 may be reopened to include training requirements. John Musson will supply a strawman regarding ESS suggested training to Jim Murphy and the Training Subcommittee
 - b. Material Handling Subcommittee – John Hogan provided an update on progress of the MHS. They have provided the lab with the requested performance evaluation line item. Jim Murphy will contact Jim Stroud for compliance feedback. EH&S Manual Chapters dealing with material handling are being re-written by Neil Wilson and the committee is

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reviewing these. MHS was asked by DSC to review forklift load transporting activities. It was agreed that the use of forklifts is a safe, appropriate and acceptable way to transport materials. Standard procedures shall be followed, such as ensuring the load is within the capability of the forklift and the load is properly secured. Special attention needs to be directed toward communication with pedestrian and automobile traffic to ensure personnel and equipment safety. The committee is currently looking at standardizing the training for motorized equipment operators

- c. Environmental Management System (EMS) – Jefferson Lab is completing nineteen tasks that established an EMS as mandated by DOE. The first eight tasks have been completed and included improving the EH&S Policy to address the EMS and the process of identifying all known site ‘environmental aspects.’
- Energy Facility Contractors Group ISM/Electrical Safety Workshop held July 28 - 29, 2005 – Electrical safety is a concern across the DOE complex with electrical events accounting for the most "near misses" in the DOE reporting system. Shock events are on the rise. There were an average of 17.5 shocks/yr in the period before '02; 25/yr in '04; and 22 in the first half of '05. Since only 37% of electrical occurrences involve electrical workers, it is important that electrical hazards be considered by all of us as we perform job hazard analyses. Attached please find Jim Murphy's Trip Report.

TOP GUARD SECURITY

JLAB Daily Activity Report

Date: 01 July 2005

Day: Friday

**Beginning
Time**

Description of Activities

0000	<p>SHIFT CHANGE: 1st Shift relieved 2nd Shift. The following post equipment is accounted for:</p> <p>8 Hand-to-hand 8 radio charges 1 Post 1 Key Ring with (17) Keys 1 Post 2 Key Ring with (12) Keys 1 Post 3 Key Ring with (12) Keys 1 Top Guard 1 key for Ford Taurus 1 Key ring with spare key for Ranger Truck and Taurus car 4 Ford walkie, 1 in each vehicle and 1 at Post 2 2 Hand held spotlights in each vehicle 2 The arrest holders in each vehicle 1 Fire extinguisher, 1 in each vehicle and 1 at Post 2 1 Talk Motor call Pager</p> <p>Post Assignments: Post 3 Supervisor Capt. Whitlow, Post 2 Lt. Brunette, and Post 1 S/O Hand All post equipment and material is in proper working order. Ford Truck has no new damage, start mileage is 14873. Ford Taurus car has no new damage, start mileage is 45588. Electronic and paper pass down logs reviewed by all remaining officers.</p>
0000	Vehicle inspection procedure is 2.
0005	Post 1 completed Patroling and inspecting delivery vehicles.
0015	Reviewing page sent to Mr. Lewis.
0020	Post 1 opened page 14, 15, and 16.
0030	Post 1 opened pages 150 and 231 of the ABC for Mr. Carolina (student).
0040	Post 1 opened the letter to Mr. Hagan, Chapter 1.
0055	Post 1 entered Bldg. 58 and stopped at corner 8.
0100	Post 1 entered room 126 of Bldg. 58 for Mr. Morgan.
0105	Officer stopped at Post 3 on duty.
0110	Officer is back on line.
0120	Inspected 1 vehicle out of 11 this shift.
1400	<p>2nd Shift on duty. Post Assignments: Post 1 S/O Hand, Post 2 S/O Brunette and Post 3 S/O Dugger</p> <p>Supervisor Dugger takes custody of all required post material and equipment.</p> <p>S/O Hand has custody of Post 1 Key Ring and Truck keys.</p> <p>S/O Brunette has custody of Post 2 Key Ring.</p> <p>S/O Dugger has custody of Post 3 Key Ring and Taurus keys.</p> <p>All post equipment and material is in proper working order.</p> <p>Truck has no new damage, start mileage is 14873.</p> <p>Taurus has no new damage, start mileage is 45587.</p> <p>Electronic and paper pass down logs reviewed by all remaining officers.</p> <p>Vehicle inspection procedure is 2.</p> <p>Post 1 and 1 completed inspection and delivery truck inspection.</p> <p>One personnel are working in the C.H. Facility, Mainly C.H. Taurus crew, C.H. Compressor, C. Cold Compressor, F.H. Transfer Line and C.H. Recovery.</p> <p>Post 1 and 1 completed Security Interest, Maintenance and Shop Check logs.</p> <p>Post 1 entered room 126 and 150 of the Bldg. building for Mr. Brunette of Postage Maintenance.</p> <p>Post 1 and 1 entered pages 14, 15, and 16.</p> <p>Post 1 entered Medical Services for Mr. Conner and Mr. Pritchard of Postage Maintenance.</p> <p>Post 1 entered Medical Services.</p> <p>Post 1 completed Security Interest and Maintenance Tour. No discrepancies noted.</p>
2123	<p>Post 3 completed Security Interest and Maintenance Tour. Discrepancies noted: Coffee Pots in buildings 18 and 58 were found left on. Spare storage cage in building 89 was found left open.</p> <p>Post 3 turned coffee pots off and secured the storage cage.</p>
2200	Inspected 1 vehicle out of 10 this shift.
2200	<p>2nd Shift on duty.</p> <p>Post Assignments: Post 1 S/O Brunette, Post 2 S/O Brunette and Post 3 S/O Jones</p> <p>Supervisor Jones takes custody of all required post material and equipment.</p> <p>S/O Brunette has custody of Post 1 Key Ring and Truck keys.</p> <p>S/O Jones has custody of Post 2 Key Ring.</p> <p>S/O Jones has custody of Post 3 Key Ring and Taurus keys.</p> <p>All post equipment and material is in proper working order.</p> <p>Truck has no new damage, start mileage is 14873.</p> <p>Taurus has no new damage, start mileage is 45587.</p> <p>Electronic and paper pass down logs reviewed by all remaining officers.</p> <p>Vehicle inspection procedure is 2.</p> <p>Post 1 and 1 completed Security Interest, Maintenance and Shop Check logs.</p> <p>Post 1 entered room 126 and 150 of the Bldg. building for Mr. Brunette of Postage Maintenance.</p> <p>Post 1 and 1 entered pages 14, 15, and 16.</p> <p>Post 1 entered Medical Services for Mr. Conner and Mr. Pritchard of Postage Maintenance.</p> <p>Post 1 entered Medical Services.</p> <p>Post 1 completed Security Interest and Maintenance Tour. No discrepancies noted.</p>
2200	Vehicle inspection procedure is 2.
2205	Post 1 and 1 completed Security Interest, Maintenance and Shop Check logs.
2210	Post 1 entered room 126 and 150 of the Bldg. building for Mr. Brunette of Postage Maintenance.
2215	Post 1 and 1 entered pages 14, 15, and 16.
2220	Post 1 entered Medical Services for Mr. Conner and Mr. Pritchard of Postage Maintenance.
2225	Post 1 entered Medical Services.
2230	Post 1 completed Security Interest and Maintenance Tour. No discrepancies noted.
2235	Post 1 and 1 completed Security Interest, Maintenance and Shop Check logs.
2240	Post 1 entered room 126 and 150 of the Bldg. building for Mr. Brunette of Postage Maintenance.
2245	Post 1 and 1 entered pages 14, 15, and 16.
2250	Post 1 entered Medical Services for Mr. Conner and Mr. Pritchard of Postage Maintenance.
2255	Post 1 entered Medical Services.
2300	Post 1 completed Security Interest and Maintenance Tour. No discrepancies noted.
2305	Post 1 and 1 completed Security Interest, Maintenance and Shop Check logs.
2310	Post 1 entered room 126 and 150 of the Bldg. building for Mr. Brunette of Postage Maintenance.
2315	Post 1 and 1 entered pages 14, 15, and 16.
2320	Post 1 entered Medical Services for Mr. Conner and Mr. Pritchard of Postage Maintenance.
2325	Post 1 entered Medical Services.
2330	Post 1 completed Security Interest and Maintenance Tour. No discrepancies noted.
2335	Post 1 and 1 completed Security Interest, Maintenance and Shop Check logs.
2340	Post 1 entered room 126 and 150 of the Bldg. building for Mr. Brunette of Postage Maintenance.
2345	Post 1 and 1 entered pages 14, 15, and 16.
2350	Post 1 entered Medical Services for Mr. Conner and Mr. Pritchard of Postage Maintenance.
2355	Post 1 entered Medical Services.
2400	Post 1 completed Security Interest and Maintenance Tour. No discrepancies noted.

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07 July 05 JLAB DAR.doc	M:\planteng\PED_temp\Lewellen - Service Deliverables\Securit...	
08 July 05 JLAB DAR.doc	M:\planteng\PED_temp\Lewellen - Service Deliverables\Securit...	
11 July 05 JLAB DAR.doc	M:\planteng\PED_temp\Lewellen - Service Deliverables\Securit...	
12 July 05 JLAB DAR.doc	M:\planteng\PED_temp\Lewellen - Service Deliverables\Securit...	
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14 July 2005 JLAB DAR.doc	M:\planteng\PED_temp\Lewellen - Service Deliverables\Securit...	
19 July 2005 JLAB DAR.doc	M:\planteng\PED_temp\Lewellen - Service Deliverables\Securit...	
15 July 2005 JLAB DAR.doc	M:\planteng\PED_temp\Lewellen - Service Deliverables\Securit...	
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18 object(s)

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Local intranet

	WSC				DSC			
	Review Date	Concern	Description	Recommendation	Review Date	Solution	Assignee	Status
1	6/16/2005	Speeding	Speed limit of 15mph is considered to be too slow.	Raise speed limit to 25mph on main accelerator site road, leave side streets and Counting House area at 15mph. But enforce speed limit.	8/1/2005	Increase speed limit to 25 mph on main roads. Leaving the side streets at 15 mph. Monitoring and “ticketing” on a more frequent basis with meaningful consequences. This will include speeding, passing in no-passing zone (which is the entire site) and illegal parking. Include communication to the site of new approach and that this in	Mark Waite	Plan due to DSC on 8/8/05
2	6/16/2005	Speeding	Some individuals need to speed in order to respond to emergencies	Not valid, no one is permitted to speed on-site for any emergency.	8/1/2005	Agree with WSC recommendation.	N/A	N/A
3	6/16/2005	Speeding	Pedestrians walk on the roadways on accelerator site and Lawrence Road b/c the alternative is to walk in the mud, sand, and grass.	Sidewalks & Pedestrian signs reminding car traffic that they are on a favored pedestrian route.	8/1/2005	Install sidewalks from CEBAF center to gatehouse, and from gatehouse to MCC. Rusty to verify this placement and install.	Rusty Sprouse	Rusty to provide near term date for installation
4	6/16/2005	Speeding	Excessive speeding on main accelerator site road.	Install Speed bumps	8/1/2005	Will not work for heavy truck loads, forklifts, etc.	N/A	N/A
5	6/16/2005	Speeding	Not enough speed limit postings	Better posting, bigger signs	8/1/2005	No further action. DSC concluded that increased signage would not change behavior. Approach	C. Leemann will discuss w/ K. Caccetta &	

	WSC				DSC			
	Review Date	Concern	Description	Recommendation	Review Date	Solution	Assignee	Status
						will be to implement item 1.	Rusty Sprouse	
6	6/16/2005	First Aid Policy	In order to get a band-aid, the safety warden must fill out a safety report for even minor cases such as paper cuts.	Paperwork requirements for the dispensing of first-aid supplies by safety wardens, supervisors, etc. and the accessibility of these supplies to be reviewed. It has been discussed that reporting of first-aid treatment is generating the opposite effect; people are not willing to get first-aid because it will take too long to fill out the paperwork.	8/1/2005	DSC concluded that first aid kits will be stocked with truly "first aid items" such as bandaids and the like, and that no paperwork will be involved with using the kits. Further, the employee will report any injury to their supervisor, and if indications so merit the employee will go to the lab medical clinic for evaluation. Communication to staff will be developed.	Craig Ferguson	
7	6/16/2005	Cross-Training	Physics swing shifts and night shifts are susceptible to potential safety incidences.	During discussion at the DSC it was concluded that this is best addressed by the specific Division by ensuring they have the proper number of people on staff.	8/1/2005	Extensive overtime working during swing and owl shifts to be reviewed. Andrew to look into operator support for safety watch during swing and owl shifts. Craig Ferguson to look into what is the definition of "safety watch" as Andrew referred to in the	Larry Cardman, Andrew Hutton	

	WSC				DSC			
	Review Date	Concern	Description	Recommendation	Review Date	Solution	Assignee	Status
						meeting and associated training necessary for this designation.		
8	6/16/2005	Cross-Training	Calling additional people for LOTO for equipment causes more down-time.	Train accelerator operators to be LOTO partners.	8/1/2005	Review needed. Andrew to look into LOTO training for operators.	Larry Cardman, Andrew Hutton	
9	7/6/2005	Material Transport with Fork Lifts	Forklifts are used on accelerator site to transport loads from off site, typically Test Lab, to the Physics Hall on site.	It was not felt that this is a safe manner to transport loads. Forklifts should be used to load and unload, not transport.	8/1/2005	Review needed.	MJ Bailey will forward this concern to the Material Handling Subcommittee for further review.	
10	7/20/2005	Material Transport with Fork Lifts	WSC member reviewed this concern and has stated that Fork Lifts transporting materials is a common practice that has been properly evaluated and all safety precautions are used. Concern is mentioned about the increase in potential damage when lifting load, setting load on truck bed, then lifting load again. There is also not enough physical	Send this concern with item #9 above to Material Handling Subcommittee for review as well.	8/1/2005	Send this concern with item #9 above to Material Handling Subcommittee for review as well.	MJ Bailey will forward this concern to the Material Handling Subcommittee for further review.	

	WSC				DSC			
	Review Date	Concern	Description	Recommendation	Review Date	Solution	Assignee	Status
			space and clearance for truck beds and fork lifts in some locations, where only a fork lift will fit.					
11	7/20/2005	Speeding	People speed to pass fork lift trucks carrying heavy loads.	Passing/No Passing Zones. No passing signs to be posted on the main accelerator road between the 15mph posted sign near the cryo lines and the guard house.	8/1/2005	Will be covered in item #1.	Rusty Sprouse	
12	7/20/2005	Speeding	Problem area around Hall A/C Ramp parking lot	5mph speed limit sign should be posted in this area.	8/1/2005	Will be covered in item #1.	Rusty Sprouse	
13	7/20/2005	Housekeeping	Wooden pallets are piling up outside of the EEL building	Inform worker to direct this problem to the safety warden and/or building manager to address. As for follow-up from employee as to the status.	8/1/2005	Agree with WSC recommendation.	Mary Beth Stewart to follow up on progress.	
14	7/20/2005	Workspaces	Inadequate workspaces for Accelerator Division EES group	Proposal from Ron Lauze and JT Kelley for solution is in progress.	8/1/2005	Director's council and others to review proposal from JT Kelley, Ron Lauze. JT Kelley and Rusty Sprouse to discuss options to move people out of these workspaces at the 8/8 DSC meeting .	Andrew Hutton	
15	7/20/2005	Traffic/Pedestrian Safety	Corners of bldg 98 are blind spots for pedestrians and motorists.	Add mirrors to both sides of bldg 98 adjacent to the counting house.	8/1/2005	Add mirrors to both sides of bldg 98 adjacent to the counting house. Craig to walk area with Rusty to	Craig Ferguson, Rusty Sprouse	

	WSC				DSC			
	Review Date	Concern	Description	Recommendation	Review Date	Solution	Assignee	Status
						identify proper installation.		
16	7/20/2005	Traffic/Ped estrian Safety	Blind spot at the corner of bldg 68 and the parking lot adjacent to the bldg.	Add mirrors to both bldg 68 and 70.	8/1/2005	Add mirrors to both bldg 68 and 70.Craig to walk area with Rusty to identify proper installation	Craig Ferguson, Rusty Sprouse	
17	7/20/2005	Traffic/Ped estrian Safety	Blind spot at the corner of bldg 70 and Hall A/C ramp parking lot.	Stop sign at the corner would be helpful. Sign would have to be placed behind yellow barriers adjacent to bldg 70 b/c large trucks and forklifts use the parking area adjacent to bldg 68 to make left turns.	8/1/2005	Stop sign at the corner would be helpful. Sign would have to be placed behind yellow barriers adjacent to bldg 70 b/c large trucks and forklifts use the parking area adjacent to bldg 68 to make left turns.Craig to walk area with Rusty to identify proper installation	Craig Ferguson, Rusty Sprouse	
18	7/20/2005	Traffic/Ped estrian Safety	Fork Lifts and Golf Carts do not have indicators. A hazard occurs when faster vehicles pass, and slower vehicles are turning in to the outdoor storage area (bone yard) and the access road to Hall B's ramp.		8/1/2005	Golf Carts and Fork Lifts should use hand signals when turning as cyclists do. No passing zones will be implemented in item #1.	Craig Ferguson, Rusty Sprouse	
19	7/20/2005	Traffic/Ped estrian Safety	The stop sign adjacent to bldg 38 is not visible enough where it is posted, and the corner is a blind corner.	Bldg 38 Stop Sign adjacent to the bldg should be moved to the other side of the road and a mirror installed.	8/1/2005	Bldg 38 Stop Sign adjacent to the bldg should be moved to the other side of the road and a mirror	Craig Ferguson, Rusty Sprouse	

	WSC				DSC			
	Review Date	Concern	Description	Recommendation	Review Date	Solution	Assignee	Status
						installed. Craig to walk area with Rusty to identify proper installation		
20	7/20/2005	Traffic/Pedestrian Safety	Located adjacent to the South Linac is a parking lot next to the bldg. A hazard is created when a vehicle is backing out; the bldg blocks the view of oncoming traffic.	Mirror should be posted on the corner of bldg 04.	8/1/2005	Mirror should be posted on the corner of bldg 04. Craig to walk area with Rusty to identify proper installation	Craig Ferguson, Rusty Sprouse	
21	7/20/2005	Safety Incident Reporting/ Handling	Workers feel safety incidences are not handled appropriately (too many safety people involved), and they will be crucified for even minor safety incidences.	Less people at safety incidence reviews (person involved, witness, direct supervisor, safety person).	8/1/2005	Craig has made improvements to the safety incident investigation process. An announcement to all staff of how safety incidents will be investigated will put workers at ease.	Craig Ferguson	
22	7/20/2005	Safety Incident Reporting/ Handling	Workers feel safety recommendations made after safety incidences are not feasible, and the workers recommendations are not considered.	Ask worker of safety incident for his recommendations and concerns related to the incident. Ask for a field expert recommendation (while keeping privacy of worker who had safety incident).	8/1/2005	Craig to consider adding the WSC recommendation to the accident investigation process. Also to ensure proper tools are used during incidences	Craig Ferguson	
23	7/20/2005	PPE	For Physics, PPE (flash suits) increased hazards are increased temp while wearing the suit and working.	Physics safety wardens are handling this problem with AC units for all suits.	8/1/2005	No "on or near" work is to be performed except verifying the absence of voltage. Diane to verify with her committee that that is the case here. Voltage Verification	Larry Cardman, Andrew Hutton	

	WSC				DSC			
	Review Date	Concern	Description	Recommendation	Review Date	Solution	Assignee	Status
						Units (VVU's) to be installed in appropriate Physics owned equipment to eliminate the need for FR clothing in most situations.		
24	7/20/2005	apacitor Discharge	Workers have expressed concern for awareness training for discharging capacitors.	An awareness training of the potential hazards. Capacitor Storage training (how to properly store capacitors so they do not charge, etc.). Electrical Safety Subcommittee has started to review and revise EH&S Manual concerning capacitors. System specific training for discharging capacitors should be handled by specific groups.	8/1/2005	Agree with WSC recommendation.	Electrical Safety Subcommittee (J. Musson) Dianne Napier to follow up on progress.	N/A

Update on Jefferson Lab's EMS (Environmental Management System) Implementation

Jefferson Lab is completing nineteen tasks that, upon completion, will enable the Lab and the DOE to document that we have established an EMS.

The first 8 tasks, that have included improving the EH&S Policy to address the EMS and the process of identifying all known site 'environmental aspects', have been completed by the EMS Implementation Team under the direction and guidance of Mary Erwin, the Lab's EMS Management Representative.

ISO14001 defines an environmental aspect as an: "element of an organization's activities, products or services that can interact with the environment."

Task 9, *SOP Development*, is still underway as some expired SOPs that address aspects still need to be updated and some newly identified SOPs are in draft or yet to be written. Only the SOPs that address what we have termed 'significant' environmental aspects are required under EMS.

Task 10, *Finalize EMS Documentation*, is still underway, as can not be completed until SOPs are approved and stored in Docushare (a new site document management program, already in use by the SRF, other Accelerator Division groups, and by the EMS Implementation Team).

Tasks 11 and 12, *Develop Training Materials and Training Plan and Perform EMS Training*, are in progress. The EMS awareness training on-line package has been prepared and is awaiting the add-on that will ensure completion is tracked in the Training and Performance Office database. All Lab staff, users, and subcontractors will be required to take this training.

Tasks 13 and 14, *Internal EMS Auditor Training and Conduct Internal EMS Audit*, are in the process of completion. The Jefferson Lab audit team was trained by two EMS consultants earlier this week and the audit itself was completed on August 4th. Though a final report will be produced by the audit team next week, yesterday's closing summary roughly stated that:

The EMS has taken shape but some of the EMS management level and department level SOPs were not complete. Until the SOPs are complete and recorded in Docushare, management programs, such as the Document Control Matrix, can not be finished. As well, some of the management level programs, though in place, have not yet been put into practice (e.g. the Project Activity Review procedure and form) as a few of the newly approved EMS procedures still need to be proactively integrated into existing programs and practices to minimize impacts.

As the EMS Awareness Training package, that includes informing the Lab about the EH&S Policy (that now includes EMS criteria), has not yet been issued (awaiting computer center tie in to the Training and Performance Office for tracking completion) people interviewed were not usually clear about the intent of the Policy or what EMS is.

In the draft audit report it appears there will be 1 or 2 major non-compliances (with the ISO 14001 standard) and about 20 minor non-compliances. The major ones are due to the lack of awareness about the EMS and the EH&S Policy and that we have not completed or implemented some of the procedures stated earlier.

The audit results will be provided to all EH&S Committee participants when available over the next two weeks.

The items identified as needing attention in **Task 15, *Corrective Actions***, must be addressed over the next month. Other known EMS open actions (not identified in the audit, such as updating the EMS database records) will also need attention over the next month. Responsible staff/managers to accomplish these will be assigned by the EMS Management Representative. The actions will be tracked in the Jefferson Lab Tracking System.

When all open items have been addressed, the audit team will prepare a management review report (**Task 16**) to document our implementation status. After review by senior management (**Task 17**) and when the Lab is satisfied it has met standards, we will document our compliance to the DOE Site Office (**Task 19A**). Then the Site Office will coordinate a formal review and document to DOE Washington that Jefferson Lab has a self-declared EMS (**Task 19B**) – expected to occur in late October/early November.

A lot has been accomplished thanks to the EMS Implementation Team, our EMS Management Representative, the Internal Audit Team, and all of their supervisors for making them available to serve the Lab in this effort. As the implementation process is continuing as we address all open EMS action items ... keep supporting those involved with EMS implementation. The Lab has already seen some benefit as at least one Lab program, the OSP/SOP document control process, has been enhanced.

Trip Report
EFCOG ISM Working Group/DOE HQ EH/NNSA
Electrical Safety Workshop
July 28-29, 2005

Additional Information:

The meeting agenda and some presentations are available at

<http://www.efcog.org/wg/ism/events/subsafety/subsafetyinfo.htm>

The workshop organizers committed to adding breakout session report-outs and a list of attendees to this site as soon as possible.

General:

- Meeting dominated by NNSA and larger for-profit contractors.
- In commercial nuclear industry the top 25 installations in safety are also the top 25 in profitability.
- John Shaw, DOE Assistant Secretary for ES&H reported that safety is Secretary Bodman's number one priority.
- Frank Russo reported that electrical incidents are at the top of ORPS near misses. He sees recurring causes:
 - poor work planning
 - poor hazard identification
 - LO/TO violations, especially failure to perform zero energy checks
 - work arounds/shortcuts
 - failure to stop work when conditions change
- Shock events are on the rise:
 - 17.5 shocks/yr in the period before '02
 - 25/yr in '04
 - 22 in first half of '05
- Only 37% of electrical occurrences involve electrical workers.
- Most incidents occur during mundane work, not critical evolutions.
- Human Performance techniques recognized as a possible way to address the kind of errors that are occurring.
- LANL has a Chief Electrical Safety Officer (Terry Fogle) and an R&D Electrical Safety Engineer (Lloyd Gordon).
- LANL has a formal program for reviewing and approving unlisted equipment:
 - graded approach - rigor of review proportional to hazard
 - requires independence of reviewer
 - need DOE Electrical Safety Handbook chapter on this?
 - LANL had ~50,000 unlisted items
- For training purposes LANL recognizes the following groups:
 - work on energized components
 - work near energized components
 - students
 - primary workers
 - ancillary workers
- Electrical hazard classification system different is at every DOE site. There was suggestion that these systems could and should be standardized across the complex. The following strawman was offered:
 - negligible <50V

Trip Report

EFCOG ISM Working Group/DOE HQ EH/NNSA

Electrical Safety Workshop

July 28-29, 2005

- low <300V
 - moderate <500A and <120 kW
 - high >500A or >120kW
- There is some interest in making the DOE Electrical Safety Handbook a contractual requirement, but sites believe that it would imply significant costs.
- At SRS (~11,000 staff) the electrical safety performance goals are:
 - no burns
 - 10% reduction in number of ORPS incidents
 - 5% improvement in "electrical safety performance indicator." This indicator weights events according to severity.
- It is important to include a check for electrical hazards during job hazard analysis of non-electrical work.
- Another grouping for training purposes:
 - administrative/clerical
 - non-electrical field workers (e.g. carpenters)
 - electrical workers
- "Electrical Hazards Awareness Briefing" for clerical/administrative is ~ one hour in duration and includes topics like daisy chaining extensions, frayed extensions, open receptacles, inserting/removing plugs.
- Configuration control at all levels (site, building, equipment) is a problem complex wide. "Assume as-builts are wrong."
- SRS requires annual requalification for those "working on or near." "Higher than normal risk" is used to describe non-electrical workers who are potentially exposed within the limited approach boundary.
- INL restricts researchers to <300V and has a special course for them.

Breakout Session Report Outs:

Excavations and Penetrations

- 20 ORPS electrical events in '04 related to "intrusions"; 14 so far in '05.
- Consider use of red-dye concrete with high voltage conduit
- Note that outside DOE 90% success rate in locating buried utilities is considered acceptable; in DOE complex it is not - expectation mismatch with commercial locators.
- Recommendations:
 - remove abandoned cables whenever found
 - use digital photos as as-builts
 - create working group to share best practices across the complex
 - discourage conduit embedded in concrete
 - establish a consistent marking technique at each site so that you know what you are looking for
 - discourage non-metallic buried conduit because it is hard to find when circuit is de-energized.
- Actions
 - DOE encourage labs to develop better locating technology

Trip Report

EFCOG ISM Working Group/DOE HQ EH/NNSA

Electrical Safety Workshop

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- DOE develop minimum certification standards for locator personnel

NFPA 70E

- Incomplete guidance in 70E
 - Is flash hazard analysis (FHA) required at high voltages, low current (<5mA) system?
 - DOE should establish formulas or methodologies for FHA of high voltage (>600V) systems. Sites are using variety of commercial and shareware programs for FHA
 - What to do when conflicting hazard requirements with respect to PPE (e.g. radiation zones and high voltage) exist? Identify the higher risk and employ the PPE that addresses that hazard.
- Reminder that NFPA 70E standard contains form for proposing changes to 70E - sites should use it.
- Accelerator sites, especially SLAC, should be encouraged to participate in future workshops.

Electrical Safety Metrics

Five metrics were proposed:

- Electric Safety Index (lagging indicator):
 - $ESI = 200,000 \times \sum (\text{event} \times \text{weight factor}) / \text{hours worked with w.f.}$
 - 1 hazard condition
 - 2 LO/TO
 - 3-5 near misses by voltage (<250, <600, >600)
 - 6-8 shock by voltage
 - 10 minor injury
 - 20 temporary disability
 - 50 permanent disability
 - 100 fatality
 - Calculate monthly and track as rolling 12-month average
 - There was consensus that ESI made sense only when it was small; a fatality is unacceptable regardless of number of hours worked.
- Track the completion of focused observation/assessment of organizational processes such as adequacy of (leading):
 - work planning
 - supervision
 - PPE
 - flowdown of requirements to subs
- Quarterly report on status of completion of corrective actions (leading)
- Track completion of applicable electrical safety training (leading):
 - <80% unacceptable
 - between 80 and 95% marginal
 - >95% acceptable
 - There was discussion about why anybody with incomplete training would be doing the work
- Track (quarterly) communication of lessons learned and resulting changes leading to continuous improvement (leading):

Electrical Safety Requirements for Subcontractors and non-Electrical Workers

- Cultural differences between DOE and commercial world a continuing source of problems.

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- Because site electrical workers seem to have gotten the safety message (e.g. they no longer expect to work energized) use electrical workers to improve electrical safety of non-electrical workers.
- Recommendation: inspect equipment of subs when they come on site.
- Use plan of the day/plan of the week processes to reinforce safety message.
- Know what you don't know should be goal of electrical safety training for non-electrical workers.
- Formal prejob meeting with subcontractor workers to establish safety expectation. Words/requirements in contract do not flow down to workers.
- Encourage reporting of "close calls" - events that aren't ORPS level near misses, but from which there are lessons to be learned and perhaps preventive actions to be taken.
- Consider training to help supervisors and peers identify fitness for duty issues (e.g. the death of the medicated worker who fell from a ladder might have been preventable if a co-worker had acted on his apparent health problem).
- Recognize that earlier poor workmanship can leave "booby traps" for later work.
- Last minute changes are a source of many electrical safety events. There is often a reluctance to stop and reanalyze when the situation changes.
- Need better inspection of subcontractor work. Other site use AHJ inspections. Hanford has a formal letter from DOE designating by name the site AHJ.
- Some sites require a formal hazard evaluation by safety department before the RFP goes out. This helps ensure that subcontractor will know the safety implications of the job before he bids.
- Some sites use (others have rejected) a device (manufactured by DrillCo <http://www.drillcogroup.com/stopbox.html>) that sits between a power cord and the power supply and that kills power if any grounded metal is contacted.